

REMARKS

Reconsideration in view of the foregoing amendments and following remarks is respectfully requested.

This amendment is in response to the Office action mailed November 29, 2005, in the above referenced patent application. Presently, claims 1 and 4-34 are pending and stand rejected. (Applicant's attorney notes that in the Office action summary, "the disposition of claims" it appears that status of claim 32 was inadvertently omitted.) With this amendment, claim 1 is amended to clarify and distinguish that the electronic sign being calibrated is not a projected display. Basis for this amendment is present in the specification at page 1, lines 9-12, and page 4, line 21.

In understanding the present invention, it may be helpful to know that the assignee of the present invention is a manufacturer of large electronic signs comprised of LEDs and used as scoreboards or other similar large informational displays. The LEDs degrade over time and are replaced in the course of maintenance of the signs. Thus, the signs are typically populated by LEDs in different stages of deterioration. The process of the invention is intended to replace a time consuming manual calibration. Significantly, these LEDs are not projector and screen combinations, but rather are directly viewed light sources. Thus, the individual pixels of the present invention should be thought of as LEDs, with each LED generating light to be directly viewed.

In the Office action, claims 1, 4-31 and 33-34 were rejected as anticipated by Johnson et al., USP 6,219,099 (hereinafter "Johnson"). According to the Examiner's explanation of the rejection of claim 1, Johnson et al. teaches a process for calibrating an electronic sign. The Examiner is interpreting the viewing screen as an electronic sign and relies upon a column 4, line 65 through columns 5, line 25. The

Johnson et al. process, as interpreted by the Examiner, includes the step of "using an imaging device to take an image of an electronic sign (using camera for capturing of the viewing screen)" relying upon FIG. 3 and column 6, lines 10-35. The Johnson et al. process also includes a step of using that image to determine control values needed to bring the electronic sign into uniformity (the resulting capture images are processed to compensate for color non-uniformity) relying upon column 5, lines 14-25.

Applicant's attorney respectfully disagrees with the rejection based upon the Examiner's interpretation of the Johnson et al. reference. The Johnson et al. reference is concerned with calibrating a particular type of display. In particular, Johnson et al. is concerned with displays produced by tiled projection systems. As a basic example of a "tiled projection system," Johnson et al. reviews the 1950's "Cinerama" system developed for the film industry. According to Johnson et al., such a system simultaneously projected three films using three separate projection displays combined to form a single panoramic image. Johnson et al. explains that a circle of projectors shining on a screen that circles the wall of a round room is still in use at Disneyland. Significantly, Johnson et al. also discloses FIG. 1 showing a tiled projected display provided by two or more projectors, which may be front or rear projectors. Each display provides an image on a viewing surface or screen and together these images form a composite image. Again, such an arrangement is different from the electronic signs being controlled in the present invention. The Johnson et al. signs are not the electronic signs involved in the present invention as recited in amended claim 1. Reconsideration and allowance of amended claim 1 is respectfully requested.

Further, the invention of amended claim 1 would not have been obvious to one of ordinary skill having knowledge of Johnson et al. This is because one of ordinary skill in LED-type signs would not have looked to tiled projected images for a solution to problems with directly viewed light sources. As taught by Johnson et al., the primary problem with tiled projected images is to appropriately deal with alignment and blending the overlapped projected images on the screen. However, in the direct viewed light source signs, overlaps and alignment are not issues because of the physical placement of the light sources eliminate such issues. In contrast, projected images are subject to such issues.

Thus, it is respectfully submitted that the Johnson et al. reference does not anticipate nor render obvious the invention of amended claim 1.

Further responsive comments, with respect to the detailed action, are as follows.

With respect to claim 4, the Examiner points out that Johnson et al. teaches that the electronic sign/viewing screen may be a monochrome display, noting columns 10, line 63-67. Johnson et al. does disclose monochrome images; however, the Johnson et al. images are projected upon a screen via projectors. Reconsideration and allowance of claim 4 is respectfully requested.

With respect claim 5, the Examiner again points to column 10, line 63-67. As noted above, Johnson et al. is discussing an image is being projected upon a screen. The present invention is not concerned with projected images. Reconsideration and allowance of claim 5 is respectfully requested.

With respect to claim 6, the Examiner yet again points to column 10, line 63-67. Again, as noted above, Johnson et al. is discussing images projected upon a screen. The present

invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 6 is respectfully requested.

With respect to claim 7, the Examiner relies upon column 7, lines 64-67 of Johnson et al. However, the scene being captured by the camera is a projected image on a screen. Again, as noted above, Johnson et al. is discussing images projected upon a screen. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 7 is respectfully requested.

With respect claim 8, the Examiner again relies upon column 10, lines 63-67 of Johnson et al. Johnson et al. is referring to projected images. Again, as noted above, Johnson et al. is discussing images projected upon a screen. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 8 is respectfully requested.

With respect claim 9, the Examiner relies upon Johnson et al. at column 7, lines 64-67. The scene or image being captured by Johnson et al. is a projected image. Again, as noted above, Johnson et al. is discussing images projected upon a screen. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 9 is respectfully requested.

With respect to claim 10, the Examiner also relies upon Johnson et al. at column 7, lines 64-67. Again, the scene or image being captured by Johnson et al. is the projected image. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 10 is respectfully requested.

With respect to claim 11, the Examiner relies upon Johnson et al. at column 8, lines 1-5. Again, the output image being measured by cameras in Johnson et al. is a projected image. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 11 is respectfully requested.

With respect to claim 12, the Examiner again relies upon column 8, lines 1-5. As pointed out with respect to claim 11, the output image being measured by cameras in Johnson et al. is a projected image. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 12 is respectfully requested.

With respect claim 13, the Examiner again relies upon column 8, lines 1-5 of Johnson et al. As pointed out above with respect to claims 11 and 12, the output image being measured by cameras in Johnson et al. is a projected image. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance are respectfully requested.

With respect to claim 14, the Examiner again relies upon column 8, lines 1-5 of Johnson et al. As pointed out above with respect to claims 11, 12 and 13, the output image being measured by cameras in Johnson et al. is a projected image. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 14 is respectfully requested.

With respect claim 15, the Examiner relies upon column 16, lines 58-64 of Johnson et al. As pointed out, the images under scrutiny in Johnson et al. are images produced by projectors. Note especially line 64 of column 16, wherein Johnson et al. refers to "each projector". The present invention is not concerned with tiled projected images of the type disclosed by

Johnson et al. Reconsideration and allowance of claim 15 are respectfully requested.

With respect to claim 16, the Examiner relies upon Johnson et al. at column 8, lines 1-5. As noted previously, Johnson et al. is concerned with capturing an image of the screen, noting column 7, lines 52-63. The screen contains a projected image. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 16 are respectfully requested.

With respect to claim 17, the Examiner relies upon column 16, lines 47-60 of Johnson et al. As noted earlier, Johnson et al. is concerned with projection displays. In particular, Johnson et al. is concerned with flat field images and how to adjust the projectors generating the flat field images. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 17 is respectfully requested.

With respect to claim 18, the Examiner again relies upon column 16, lines 47-60 of Johnson et al. As noted earlier with respect to claim 17, Johnson et al. is concerned with projection displays. In particular, Johnson et al. is concerned with flat field images formed by projectors and how to adjust the projectors forming those flat field images. The electronic signs of the present invention do not include projectors. Reconsideration and allowance of claim 18 is respectfully requested.

With respect claim 19, the Examiner again relies upon column 16, lines 47-60 of Johnson et al. As noted earlier with respect to claims 17 and 18, Johnson et al. is concerned with projection displays. In particular, Johnson et al. is concerned with flat field images formed by projectors and how to adjust

the projectors forming those flat field images. The electronic signs being calibrated in the present invention do not include projectors. Reconsideration and allowance of claim 19 is respectfully requested.

With respect claim 20, the Examiner relies upon **FIGS. 11 and 12** of Johnson et al. **FIGS. 11 and 12** are illustrative patterns of adjacent and overlapping tiles of projected images on a display screen. As explained by Johnson et al. at column 14, lines 18-22, two projectors are projecting 9x9 arrays of dots. An overlap region is indicated at reference #294 and discussion of projector misalignments and the affect on such overlap regions are discussed. The electronic sign being calibrated in the present invention does not include projectors. Reconsideration and allowance of claim 20 are respectfully requested.

With respect to claim 21, the Examiner relies upon **FIGS. 11 and 12** of Johnson et al. **FIGS. 11 and 12** are illustrative patterns of adjacent and overlapping tiled projected images. As explained by Johnson et al. at column 14, lines 18-22, two projectors are projecting 9x9 dots. The overlap region, indicated at reference numeral #94, in the discussion of projector misalignment on such overlap region is discussed. The electronic sign being calibrated in the present invention does not include projectors. Reconsideration and allowance of claim 21 is respectfully requested.

With respect to claim 22, the Examiner relies upon column 8, lines 45-48 of Johnson et al. This passage again is directed to a projection display, noting lines 45-46, and is concerned with projectors (reference #32 and 34) as depicted in **FIG. 3**. The electronic sign being calibrated in the present invention does not include projectors. Reconsideration and allowance of claim 22 is respectfully requested.

With respect to claim 23, the Examiner relies upon column 8, lines 24-39. This passage is concerned with the projected image on screen #36, as depicted in FIG. 3. As noted above, the electronic sign being calibrated in the present invention does not include projectors such as those shown in FIG. 3 at #32 and #34. Reconsideration and allowance of claim 23 is respectfully requested.

With respect claim 24, the Examiner relies upon column 8, lines 33-37. As noted above, the electronic sign being calibrated in the present invention does not include projectors. Projectors are critical to producing the image on the screen #36 of FIG. 3. Reconsideration and allowance of claim 24 is respectfully requested.

With respect to claim 25, the Examiner relies upon FIG. 12 and column 14, lines 21-25. As noted earlier, FIG. 12 and the relied upon passage are concerned with projectors. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 25 are respectfully requested.

With respect to claim 26, the Examiner relies upon column 15, lines 1-8. This passage concerns dots projected from separate projectors, as noted in column 14, lines 30-33. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 26 is respectfully requested.

With respect to claim 27, the Examiner relies upon column 15, lines 1-8 of Johnson et al. As noted in Johnson et al. at column 14, lines 30-33, the concern is with two dots projected from two separate projectors. The present invention is not concerned with tiled projected images of the type disclosed by Johnson et al. Reconsideration and allowance of claim 27 is respectfully requested.

With respect to claim 28, the Examiner relies upon column 8, lines 11-23, and column 11, lines 7-22. Both of these passages are concerned with projected images. The electronic sign being calibrated in the present invention does not include projectors. Reconsideration and allowance of claim 28 is respectfully requested.

With respect claim 29, the Examiner relies upon column 11, lines 25-35 of Johnson et al. This passage is concerned with warping a signal sent to a projector-screen combination, as noted in an column 11, line 36. The electronic sign being calibrated in the present invention does not include projectors. Reconsideration and allowance of claim 29 is respectfully requested.

With respect to claims 30 and 31, the Examiner relies upon column 15, lines 4-10. The two corresponding dots in the image overlap result from separate projectors. The electronic sign being calibrated in the present invention does not include projectors. Reconsideration and allowance of claims 30 and 31 is respectfully requested.

With respect to claim 33, the Examiner relies upon column 16, lines 58-60 of Johnson et al. This passage concerns a capture image of a projected screen image from a plurality of projectors. Note column 16, line 64. As noted above, the present invention is not directed to the electronic sign is incorporating projectors. Reconsideration and allowance of claim 33 is respectfully requested.

With respect to claim 34, the Examiner relies upon **FIG. 3** of Johnson et al. As explained in column 6, lines 10-17, **FIG. 3** is a schematic diagram of the Johnson invention where projectors #32 and #34 project an image on a viewing screen #36. As noted above, the present invention concerns calibration of the electronic sign that does not include projectors.

Reconsideration and allowance of claim 34 is respectfully requested.

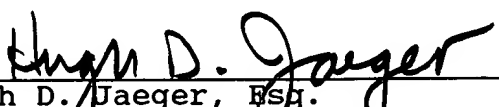
In the Office action, claim 32 was rejected as obvious over Johnson et al. in view of McCauley (USP 5,363,318). The Examiner recognizes that Johnson et al. does not teach iterative repetition for calculating differences. The Examiner points to McCauley as providing such a teaching. This rejection overlooks the problem that Johnson et al. is directed toward calibration of multiple projectors, while the present invention is directed toward calibration of electronic signs that do not include projectors. McCauley's FIG. 9 concerns calibration of a scanner. One of ordinary skill in the art would not have been led by the Johnson et al. teaching concerning multiple projectors in combination with the McCauley teaching concerning scanners to the present invention. The problem of the need to maintain a large electronic sign with LEDs of various age and various states of degradation would not lead to one of ordinary skill to consider multiple projectors and scanners for a solution. Reconsideration and allowance of claim 32 is respectfully requested.

If there are any further issues yet to be resolved to advance the prosecution of this patent application to issue, the Examiner is requested to telephone the undersigned counsel.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,

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